

## AMENDMENTS TO THE CLAIMS

**1. (Currently Amended)** A diversity receiving apparatus for receiving a packet having embedded therein symbols which are multiple repetitions of a pattern signal having a predetermined pattern, the apparatus comprising:

- a plurality of antennas;
- an antenna switching section for selecting an antenna from the plurality of antennas and outputting a signal received by the selected antenna as a received signal;
- a gain amplifier section for amplifying the received signal outputted from the antenna switching section and outputting the amplified signal;
- a gain control section for controlling a gain of the gain amplifier section;
- a power measurement section for measuring an instantaneous power of an output signal from the gain amplifier section;
- an averaging section for taking an average of the instantaneous power measured by the power measurement section on an averaging period-by-averaging period basis, and measuring the average powers, the averaging period having the same time length as one period of the pattern signal; and
- a control section for controlling the gain control section so that the gain amplifier section has a desired gain, and controlling a selection of the antennas made by the antenna switching section, wherein
  - during all or part of a time period during which the pattern signals are received, the control section allows the gain control section to fix the gain of the gain amplifier section, allows the antenna switching section to sequentially switch the selection of the antennas during antenna switching periods which are synchronized with the averaging periods, and determines an antenna to receive data contained in the packet, based on levels of the average powers measured by the averaging section on an averaging period-by-averaging period basis,
  - during a waiting time for the pattern signals, the control section controls the gain control

section such that the gain amplifier section amplifies the received signal with a first fixed gain, and allows the antenna switching section to sequentially switch the selection of the antennas during the antenna switching periods,

if any of the levels of the average powers measured by the averaging section during the waiting time for the pattern signals exceeds a first threshold value, the control section determines as the antenna to receive the data an antenna which had been selected during an averaging period where the highest average power was measured,

if any of the levels of the average powers measured by the averaging section during the waiting time for the pattern signals exceeds a second threshold value which is higher than the first threshold value, the control section controls the gain control section such that the gain amplifier section amplifies the received signal with a second fixed gain which is lower than the first fixed gain, and allows the antenna switching section to sequentially switch the selection of the antennas during the antenna switching periods so that the plurality of antennas are all selected, and

the control section determines as the antenna to receive the data an antenna which had been selected during an averaging period where the highest average power was measured among all average powers measured using the second gain.

#### **2-4. (Cancelled)**

**5. (Currently Amended)** The diversity receiving apparatus according to claim [[4]] 1, further comprising:

a correlation section for determining a correlation value between a signal outputted from the gain amplifier section and the pattern signal; and

a correlation detection section for detecting a timing at which the pattern signal is received, based on the correlation value determined by the correlation section and the average power measured by the averaging section, wherein

if any of the levels of the average powers measured by the averaging section during the

waiting time for the pattern signals is lower than the first threshold value and a reception of the pattern signal is detected by the correlation detection section, the control section controls the gain control section such that the gain amplifier section amplifies the received signal with a third fixed gain which is higher than the first fixed gain, and allows the antenna switching section to sequentially switch the selection of the antennas during the antenna switching periods so that the plurality of antennas are all selected, and

the control section determines as the antenna to receive the data an antenna which had been selected during an averaging period where the highest average power was measured among all average powers measured using the third gain.

#### **6. (Cancelled)**

**7. (Original)** The diversity receiving apparatus according to claim 1, further comprising:  
a correlation section for determining a correlation value between a signal outputted from the gain amplifier section and the pattern signal; and

a correlation detection section for detecting a timing at which the pattern signal is received, based on a peak of the correlation value determined by the correlation section and the average power measured by the averaging section, wherein

during a waiting time for the pattern signals, the control section controls the gain control section such that the gain amplifier section amplifies the received signal with a first fixed gain, and allows the antenna switching section to sequentially switch the selection of the antennas during the antenna switching periods,

if any of the levels of the average powers measured by the averaging section during the waiting time for the pattern signals is lower than a first threshold value and a reception of the pattern signal is detected by the correlation detection section, the control section controls the gain control section such that the gain amplifier section amplifies the received signal with a third fixed gain which is higher than the first fixed gain, and allows the antenna switching section to sequentially switch the selection of the antennas during the antenna switching periods so that the

plurality of antennas are all selected, and

the control section determines as the antenna to receive the data an antenna which had been selected during an averaging period where the highest average power was measured among all average powers measured using the third gain.

**8. (Original)** The diversity receiving apparatus according to claim 1, wherein during a waiting time for the pattern signals, the control section controls the gain control section such that the gain amplifier section amplifies the received signal with a first fixed gain, and allows the antenna switching section to sequentially switch the selection of the antennas during the antenna switching periods, and

if any of the levels of the average powers measured by the averaging section during the waiting time for the pattern signals exceeds a second threshold value, the control section determines as the antenna to receive the data an antenna which had been selected during an averaging period where the average power exceeding the second threshold value was measured.

**9. (Original)** The diversity receiving apparatus according to claim 1, further comprising: a correlation section for determining a correlation value between a signal outputted from the gain amplifier section and the pattern signal; and

a correlation detection section for detecting a timing at which the pattern signal is received, based on a peak of the correlation value determined by the correlation section and the average power measured by the averaging section, wherein

during a waiting time for the pattern signals, the control section controls the gain control section such that the gain amplifier section amplifies the received signal with a first fixed gain, and allows the antenna switching section to sequentially switch the selection of the antennas during the antenna switching periods, and

if any of the levels of the average powers measured by the averaging section during the waiting time for the pattern signals is lower than a first threshold value and a reception of the pattern signal is detected by the correlation detection section, the control section determines as

the antenna to receive the data an antenna which had been selected during an averaging period where the average power lower than the first threshold value was measured.

**10. (Original)** The diversity receiving apparatus according to claim 1, wherein the gain control section controls the gain of the gain amplifier section using a gain value based on an average power of a signal received by the antenna having been determined by the control section.

**11. (Currently Amended)** A wireless receiving apparatus for receiving a packet having embedded therein symbols which are multiple repetitions of a pattern signal having a predetermined pattern, the apparatus comprising:

- a diversity receiving apparatus for selecting an antenna and receiving the packet; and
- a demodulation section for demodulating a signal received by the diversity receiving apparatus, wherein
  - the diversity receiving apparatus includes:
    - a plurality of antennas;
    - an antenna switching section for selecting an antenna from the plurality of antennas and outputting a signal received by the selected antenna as a received signal;
    - a gain amplifier section for amplifying, before or after a frequency conversion, the received signal outputted from the antenna switching section and outputting the amplified signal;
    - a gain control section for controlling a gain of the gain amplifier section;
    - a power measurement section for measuring an instantaneous power of an output signal from the gain amplifier section;
    - an averaging section for taking an average of the instantaneous power measured by the power measurement section on an averaging period-by-averaging period basis, and measuring the average powers, the averaging period having the same time length as one period of the pattern signal; and
    - a control section for controlling the gain control section so that the gain amplifier section has a desired gain, and controlling a selection of the antennas made by the antenna switching

section, wherein

during all or part of a time period during which the pattern signals are received, the control section allows the gain control section to fix the gain of the gain amplifier section, allows the antenna switching section to sequentially switch the selection of the antennas during antenna switching periods which are synchronized with the averaging periods, and determines an antenna to receive data contained in the packet, based on levels of the average powers measured by the averaging section on an averaging period-by-averaging period basis,

during a waiting time for the pattern signals, the control section controls the gain control section such that the gain amplifier section amplifies the received signal with a first fixed gain, and allows the antenna switching section to sequentially switch the selection of the antennas during the antenna switching periods,

if any of the levels of the average powers measured by the averaging section during the waiting time for the pattern signals exceeds a first threshold value, the control section determines as the antenna to receive the data an antenna which had been selected during an averaging period where the highest average power was measured,

if any of the levels of the average powers measured by the averaging section during the waiting time for the pattern signals exceeds a second threshold value which is higher than the first threshold value, the control section controls the gain control section such that the gain amplifier section amplifies the received signal with a second fixed gain which is lower than the first fixed gain, and allows the antenna switching section to sequentially switch the selection of the antennas during the antenna switching periods so that the plurality of antennas are all selected, and

the control section determines as the antenna to receive the data an antenna which had been selected during an averaging period where the highest average power was measured among all average powers measured using the second gain.